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VERBAL INTERACTION BETWEN PUPILS AND TEACHERS IN THE TEACHING PROCESS

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Abstract:

The teaching process is realized through communication and interaction between pupils and teachers. To what extent the educational process will be successful it is determined by the content and direction of verbal interaction and communication. Verbal teacher-pupil interaction is a multifaceted construct that involves a number of different components that are interconnected. The studies of teacher-pupil interactions clearly show that the type and the quality of established interaction in the classroom are related to learning outcomes. Teaching should include real learning, not just reproductive academic tasks in the traditional teaching which favoured role of the teacher as the subject of the teaching process, and placed pupils in the position of passive listeners and executors of teacher's commands. The survey was conducted in primary and secondary schools in Bosnia and Herzegovina (Mostar region) through direct observation of verbal communication and interaction and their connection to the teaching outcomes of eight school subjects. The extent to which pupils are directly or indirectly involved in the process of executing instruction, and what is their interaction at a time, we examined by Flanders' interaction analysis protocols. The protocol we applied systematically observed 224 lessons (112 lessons in primary and 112 lessons in secondary school). The results we obtained suggest that the verbal activity of teachers is still dominant, and that verbal activity of pupils is neglected.

Keywords: interaction, communication, pupil-teacher, verbal activity

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Introduction

The teaching process is realized through communication and interaction between pupils and teachers. To what extent the educational process and its quality will be successful is determined by the success of verbal interaction and communication (Ozegovic, 2006). The studies of teacher-pupil interactions clearly show that the type and quality of interaction achieved in a class is associated with learning outcomes (Hewitt, 2003). Most researchers are of the conviction that the quality of teacher-student interactions plays a major role in the effectiveness of the teaching and learning (Needles, 1988; Darling Hammond, 2007).

Efficient teachers who are able to establish good relationships with their students play vital roles at schools (Luck, 2004). Some models of teaching and learning that occurred in the last thirty years, such as the model of interpersonal behaviour of teachers (Wubbels, Creton and Hooymayers 1985), transactional model of the process of teaching-learning (Hewitt, 2003) and other models, assume that learning activities should reflect the real learning rather than traditional academic tasks and traditional teaching that favoured role of the teacher as the subject of the teaching process, and pupils generally placed in the position of passive listeners and executors of teacher's commands, so that effective learning is constructive and self-regulated, and not merely reproductive.

Most of the interaction in the learning process is carried out through verbal communication between pupils and a teacher, but the teacher has different roles in relation to pupils. During communication teacher realizes educational, social and motivational role so that the term interaction is comprehended wider than the concept of communication. Influenced teaching develops, promotes and supports educational activity for each pupil to the maximum level of knowledge and the development of the potential of his/ her personality. In order to do that it is necessary in the teaching process to enable pupils to express their thoughts, ideas, feelings and beliefs in non-violent and multidirectional communication and interaction and partner interaction between a teacher and other pupils. One of the methods that is easy to implement and has good reliability and validity with regard to interpretation of results is Flanders method (Wragg 2002: Saba, 2007; Azar, 2003; High & Bee, 2006).

The scope of these findings has been increased in previous studies, but questions about the types, elements and educational influences of verbal communication and interpersonal interaction in the classroom

Method

The aim of this research study was to "*Examine and analyse the nature of interpersonal communication in teaching in primary and secondary schools, identify its main characteristics and to determine its relationship to the success of pupils*." We started from the hypothesis that the verbal activities of teachers dominate the activities of the pupils that are not reflected positively on the success of pupils in primary and secondary schools. Applied research methods are survey research methods, analytical and synthetic and comparative method. Research techniques applied in this study are systematic observation and micro test.

Examinees

Empirical research was conducted in public schools in the southern part of Bosnia and Herzegovina (Mostar region) and included pupils and teachers from seven primary and seven secondary schools. The sample was 905 examinees (590 or 65.19% pupils of the ninth year of primary school and first year of secondary school, and 315 or 34.8% of teachers). In relation to the population (2,095 pupils and 1,264 teachers) randomly selected sample is representative because it includes more than 28.00% of the pupils, and over 40% of teachers.

Instrument

To what extent are pupils involved in the process of verbal communication and interaction during the lesson, we examined by Flanders' interaction analysis protocols. Protocol observing interactions in the teaching process was designed and standardized by N.A. Flanders and this scientifically verified instrument is applied to research the interaction and communication of participants of the teaching process. Flanders has developed a protocol of the 10 categories (Flanders, 1974, p. 4).

Table: 1 Categories of Flanders' interaction analysis

	Response (Indirect influence)	**1. Accepts pupil's feelings: Accepts or explains pupil's feelings without encouragement. Feelings can be positive or negative. Here we can include, predicting the feelings and recalling the previous lessons.** **2. Praises or Encourages: Praises or encourages pupil's actions or behaviour. Jokes to loosen the tension, but not at the expense of others. These include encouraging head "nod" and expressions such as "aha" or "and further".** **3. Accepts or uses ideas of pupils: Explains, manufactures and develops ideas of pupils. When the teacher begins to enter mainly their ideas, he changes to the category 5.** **4. Asks questions: Asks question about content or with the intention that the pupil replies.**
Teacher's talk	Initiative (Direct influence)	**5.** Lecturing /Lecture: Giving facts or opinions about content or procedure expression of his own ideas, asking rhetorical questions. **6.** Giving Directions: The teacher gives directions, commands or orders or initiation with which a pupil/pupil is expected to comply with. **7.** Criticizing or Justifying Authority: Statements which seek to change the behaviour of pupils from unacceptable to acceptable; Extreme reference of himself.
Pupil's talk	Response (Indirect influence)	**8.** Pupil Talk Response: Pupil gives answer to the teacher's question. Teacher structures and limits the situation. Pupil's freedom to express one's thoughts is limited.
	Initiative (Direct influence)	**9.** Pupil Talk Initiation: The pupil expresses new ideas, his own ideas - spontaneously or at the initiation of teachers. The possibility of freedom to develop opinions and a line of thought; going beyond the existing structure.
	Silence or Confusion	**10.** Silence or Confusion: Pauses, short periods of silence and period of confusion in which communication cannot be understood by the observer.

We applied this protocol by watching and observing 224 lessons (112 lessons in primary and 112 lessons in secondary school). Because we wanted to research the relationships between verbal interactions with the success of pupils, at the end of the observed lesson teachers have made five-minute assessment of pupils applying thematically relevant Micro Test.

Results and Discussion

The results we obtained have included collective indicators of verbal communication and interaction between pupils and teachers within 8 teaching subjects taught in primary and secondary schools: Bosnian Language and Literature, History, Geography, Religion, Biology, Chemistry, Mathematics and Computer Science.

We presented summarized information in the following table.

Table: 2 Summary results of verbal interaction on the lessons

Category	School subject																	
	Bosnian language		History		Geography		Religion		Maths		Biology		Chemistry		Computer Science		Total	
	min	%	min	%	min	%	min	%	min	%	min	%	min	%	min	%	min	%
1	0,3	0,8	0,5	1,25	0,6	1,5	0,5	1,25	0,2	0,5	0,1	0,25	0,2	0,5	0,2	0,5	2,6	0,81
2	1,9	4,8	1,8	4,5	1,1	2,75	2,3	5,75	1,4	3,5	2,1	5,25	1,7	4,25	2,2	5,5	15	4,53
3	2,4	6,0	2,1	5,25	1,8	4,5	1,7	4,25	0,6	1,5	1,5	3,75	1,8	4,5	1,7	4,25	14	4,25
4	8,3	20,8	6,4	16	7,3	18,3	6,8	17	4,2	10,5	4,9	12,3	5,4	13,5	6,2	15,5	50	15,47
5	7,5	18,8	10	25,5	10	26	8,8	22	7,2	18,0	11	27	11	27	6,3	15,8	72	22,50
6	3,4	8,5	5,6	14,0	4,2	10,5	4,1	10,3	8,6	21,5	6,9	17,3	5,3	13,3	6,4	16,0	45	13,91
7	0,2	0,5	1,2	3,0	0,9	2,25	1,3	3,25	1,3	3,25	1,5	3,75	1,7	4,25	1,2	3,0	9,3	2,91
8	8,1	20,3	6,4	16,0	6,5	16,3	7,3	18,3	8,2	20,5	5,8	14,5	6,8	17,0	6,8	17,0	56	17,47
9	5,5	13,8	3,4	8,5	4,7	11,8	5,1	12,8	5,2	13	4,3	10,8	4,5	11,3	6,1	15,3	39	12,13
10	2,4	6,0	2,6	6,5	2,5	6,25	2,1	5,25	3,1	7,75	2,1	5,25	1,8	4,5	2,4	6,0	19	5,94
Total	40	100	40	100	40	100	40	100	40	100	40	100	40	100	40	100	320	100

Legend (Categories of verbal influence)

1. Accept the pupil's attitudes 2. Praises or encourages 3. Accepts or uses ideas of pupils 4. Asks questions 5. Lecturing /Lecture 6. Gives instructions 7. Criticizing or Justifying Authority 8. Pupil's talk - response 9. Pupil's talk - initiation 10. Silence or confusion

Results shows that the first three categories relating to the indirect influence of teachers, and their response to the pupils, are distinguished by low results. The lowest percentage of 0.81%, we observe in the first category, which refers to the acceptance of pupils' feelings and emotions. Although very similar estimates are observed for all the school subjects, Geography teachers are slightly more successful in this category. In this emotional atmosphere the pupils are not given the opportunity for the development of positive emotions and feelings towards the educational process. The second category which relates to encouraging pupils in their activities has gained 4.53% presence in the teaching process. This category is the most represented among the teachers of Religion.

On the basis of the observed lessons of Religion, using arithmetic mean, we have calculated that 5.7% of the time in class, teachers of Religion use for encouraging pupils. Acceptance of pupils' idea has received 4.25% of time for all subjects covered by our research. However, teachers of Bosnian language, with 6.0% of the time, are the most successful in this category. The fourth category, which includes indirect influence of teachers, received a much higher percentage than the previous three categories. Based on all lessons it was observed that teachers use 15.47% of the time for asking pupils questions. And in this category, as well as in the previous, teachers of Bosnian language are most successful with 20.8% of the time they devote to asking pupils questions.

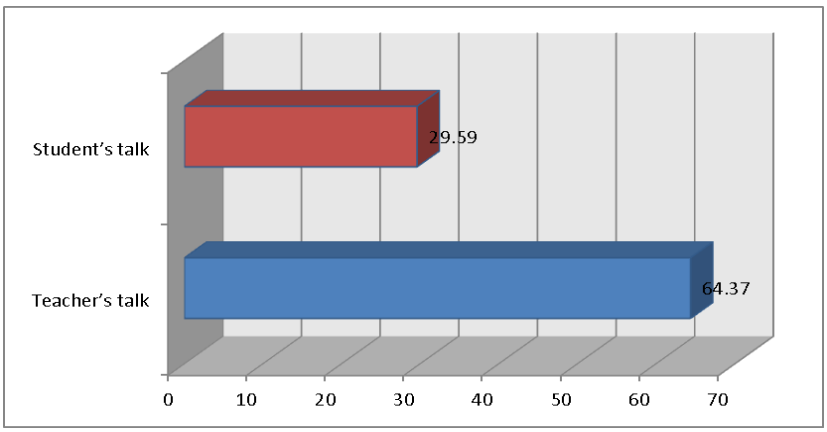
Categories 5-7 reflect the direct impact of teachers in verbal interaction with pupils. The fifth category, concerning the presentation of the teaching material to the

pupils, received the highest representation with respect to all categories. Out of the total time that teachers use for realization of a lesson, 22.50% is used for presentation of teaching material, facts or an opinion. Biology teachers, with 27.0% of time spent, are the most engaged in this category of direct influence of teachers on the communication process. Giving instructions, orders and commands was the sixth category of direct influence of teachers, which was represented in all subjects by 13.91%. In this category are by far the most active teachers of mathematics who take 21.5% of the time to provide guidance, advice and orders. The seventh category was related to criticizing pupils or references to teacher's authority. This category was represented by the 2.78% of the observed lessons. Although the results are very similar for all subjects, Biology teachers with 3.75% stand out in this category.

Category pupils' talk included the response of pupils to the teacher's question and the pupil's self-initiated talk. Indicator under number 8, the pupil's response to the teacher's question was observed in 17.47% of the observed lessons. Pupils are the most active in answering questions in mathematics (20.5%) and Bosnian language (20.3%). The pupil's self-initiated talk is represented in the implementation of the observed lessons in 12.13% of cases. Pupils' maximum voluntarily self –initiated talk is observed in Computer science 15.3%.

The last category, which means silence or confusion, is represented in 5.94% of cases. At most history teachers we noticed this category of 6.5% of the time during the lesson. By analysing the obtained data we can see connections between category 8 and category 4 (teacher asks questions to which pupils give their answers) which means that the teacher stimulates the pupil's oral expression in the classroom.

Once we have analysed the presence of each category by subjects, we analysed the obtained data based on the teacher's activity, pupil activity in silence or confusion. We were especially interested in the data on the representation of verbal activities of pupils and teachers that we have shown in the following chart.



Graphic 2: The presence of verbal activity

During the realization of the teaching process teacher's talk is in the percentage twice more present than the proportion of verbal activity of pupils. The data obtained verbal activities of teachers (categories 1-7) point to 64.25% of the time of their speech, and the share of verbal activity of pupils (categories 8-9) is 30.25% of the time. In all the school subjects the share of teacher's talk is much higher than the share of pupil's talk. Using T-test, we explored the importance of the difference between the total share of the teacher and pupils' talk at the time. The obtained value of t = 2.71 is greater than the threshold values at the level of 0.05 t = 1.96 and at the level of 0.01 t = 2.58 for an appropriate degree of freedom (df = ∞)[ii], which brings us to the conclusion that there is a statistically significant difference between the time filled with teacher's talk and pupil's talk. This relationship was observed within the school subjects and compared among the five minute test implemented at the end of the observed time. The results are shown collectively in categories.

Table 3: Verbal activity by subjects

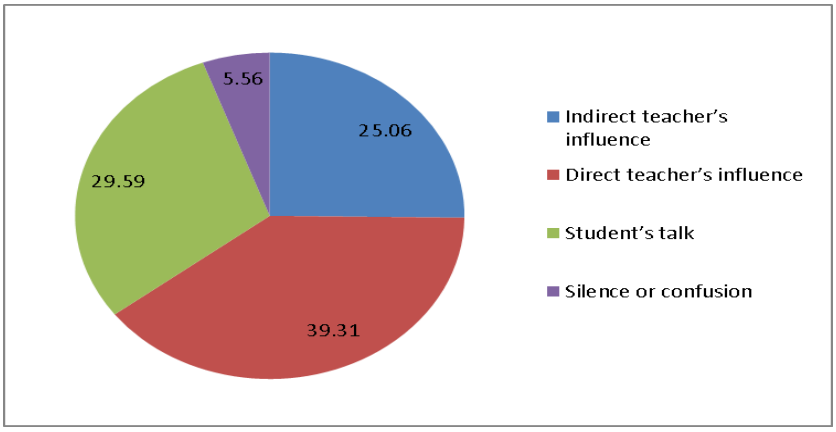
Category	School subjects																	
	Bosnian language		**History**		**Geography**		**Religion**		**Maths**		**Biology**		**Chemistry**		**Computer Science**		**Total**	
	min	%	min	%	min	%	min	%	min	%	min	%	min	%	min	%	min	%
A	24	60,0	28	69,5	26	65,8	26	63,8	24	58,8	28	69,5	27	67,3	24	60,50	206	64,38
B	12,9	32,3	11	27	11	27	11	28,3	6,4	16	8,6	21,5	9,1	22,8	10	25,75	80	25,06
C	11,1	27,8	17	42,5	16	38,8	14	35,5	17	42,8	19	48	18	44,5	14	34,75	126	39,31
D	1,16		0,64		0,70		0,80		0,37		0,45		0,51		0,74		0,67	
E	13,6	34,0	9,8	24,5	11	28	12	31	13	33,5	10	25,3	11	28,3	13	32,3	95	29,59
F	2,4	6,0	2,6	6,5	2,5	6,25	2,1	5,25	3,1	7,75	2,1	5,25	1,8	4,5	2,4	6	19	5,94
G	4,2		3,9		4,0		4,3		3,4		3,8		3,6		4,1		3,9	

Legend:

A-teacher's talk, B-Indirect teachers' influence, C-Direct teachers' influence, D -ratio of direct and indirect influence E - pupil's talk, F -silence or confusion, G - average grade of five-minute test of knowledge

Based on these results, it is evident that teacher's talk is the most represented in the teaching of history and biology (69.5%), and the least in Mathematics (58.8%). Pupil's talk is the most represented in the teaching of Bosnian language (34.0%), but the least at the teaching of Biology (25.3%). Silence or confusion at the lesson is the most present in the teaching of Mathematics (7.75%), and the least in Chemistry (4.5%).

[ii] A sample of observed lessons represents in our study sample time. Time of 224 lessons we observed as the approximate time of 8960 minutes, which is a pattern of time. Taking into account this time pattern, the number of degrees of freedom (df) for all cases was determined by limit value infinity (df = ∞).



Graphic 3: Verbal activity study (summary)

Based on the graph it is evident that during the implementation of the teaching process direct teacher's influence is more dominant 39.19%, followed by the pupil's talk present with 29.59% of the time, the indirect teacher's influence was 25.06% and silence or confusion with 5.56 % of the time.

What is very important for us is the connection between verbal activity and a five-minute test of knowledge. From the results[iii] it is evident that in cases where there was greater presence of pupils' verbal activity (Bosnian language, computer science and religion) rating on a five-minute test of knowledge is greater, while in cases where the presence of verbal pupils' activity was less (chemistry, biology, history, geography) rating on a five-minute test of knowledge is somewhat less. Mathematics is the only subject that stands out here where it can be noted greater pupils' verbal activity, but the result of the test did not suite to their activities. The reason for this can be the fact that during the course of teaching mathematics there was a number of pupils who were constantly involved in the implementation of the teaching process, while the other number of pupils largely was not involved in the production of content. We tested the significance of the difference of the teacher's direct and indirect verbal influence. The obtained value $t = 4.15$ is greater than the threshold values at the level of 0.05% $t = 1.96$ and at the level of 0.01% $t = 2.58$ for an appropriate degree of freedom ($df = \infty$).

Teachers, in their work and the realization of the educational process, are more inclined to the direct influence on pupils. Teachers' profession is one of the most responsible ones, because the teachers have really difficult and important task that is to make learning easier and thus directly affect the formation, development and the future of their pupils. The importance and complexity of the teachers' role demands from

[iii] According to Mužić (1986, p. 231), data processing can point to a number of characteristics of teaching: in categories 1-4 Category 1 indicates the highest level and category 4 the lowest level of the student's freedom. Furthermore, the alternating sequence within categories 1-3 indicates the prevalence of mild, friendly, democratic attitude of teachers, and in the category 6 and 7 - his autocratic, undemocratic attitude.

them a quality education, sincere dedication to their work, a great love for their work, continuous improvement and talent.

As our study included eight subjects, the results were analysed according to the nature of the subject as follows:

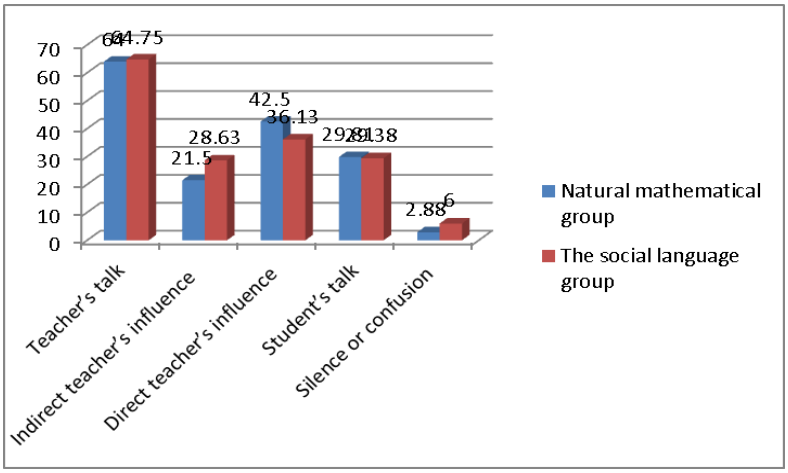
- Natural mathematical group of subjects (Mathematics, Biology, Chemistry, Computer science)
- The social language group of subjects (Bosnian language, History, Geography, Religion

Table 4: Summary results of verbal interaction in groups

Categories	The social language group		Natural mathematical group	
	min	%	min	%
Teacher's talk	102,4	64,00	103,6	64,75
Indirect influence	34,4	21,50	45,8	28,63
Direct influence	68	42,50	57,8	36,13
Ratio of direct and indirect influence	0,51		0,79	
Pupil's talk	47,7	29,81	47	29,38
Silence or confusion	9,4	5,88	9,6	6,00
Teacher's talk	3,8		4,1	
Average grade	3,7		4,1	

Based on these tables very similar results in both groups of subjects are visible. The difference is insignificant in the terms of direct or indirect teacher's influence where we noticed that in the social linguistic group of subjects there is larger presence of indirect teacher's influence which is ultimately reflected in the average grade obtained in a five-minute test of knowledge.

In order to see whether there are differences between arithmetical means of natural-mathematics group and social language group we calculated t-test. In the natural-mathematical group of subjects the received t-test value (I-D influence) was t = 3.04, which is statistically significant difference at the level of 0.05%, which is t = 1.96 for an appropriate degree of freedom (df = ∞). Testing statistically significant differences of teacher direct and indirect influence in the social group, we have reached a value of t = 8.63, which is also a statistically significant difference at the level of 0.05 (t = 1.96).



Graphic 4: Summary results of verbal interaction in groups

From the graphic we see that the presence of direct teacher's influence is the largest with 42.25% in natural mathematical group, or 36.13% in social language group. There is minimum presence of silence or confusion at the lessons. In the natural mathematical group it is 2.88%, and in the social language group it is 6.0%. The obtained data, we differentiate with respect to the type of school in which the observation was realized and that is: primary school and secondary school. Grouping the data we presented in the following table.

Table 5: Grouped data by categories

Category	Primary school		Secondary school	
	min	%	min	%
Teacher's talk	99,7	62,31	105,9	66,19
Indirect influence	46,5	29,06	43,5	27,19
Direct influence	53,2	33,25	62,4	39,00
Ratio of direct and indirect influence	0,87		0,70	
Pupil's talk	49,9	31,19	44,8	28,00
Silence or confusion	6,9	4,31	10,9	6,81

There can be seen small differences in the results. In primary schools, on the basis of observed lessons, teacher's talk during the implementation of the teaching is present in 62.31% of teaching time, and in secondary schools in somewhat higher percentage, 66.19%. Indirect influence of primary school teachers is present in 29.06% of teaching time, and in secondary schools in a somewhat smaller percentage, 27.19%. Direct influence of primary school teachers is found in 33.25% of the lesson, a teacher of secondary school 39.0%. This influence is reflected in the presentation of teaching materials, but also in giving instructions and orders to pupils or criticism. Pupil's talk is

prevalent in primary schools, 31.19%, in contrast to the pupil's talk in secondary schools, which is represented in a somewhat smaller percentage 28.0%. Silence or confusion is more present in secondary schools 6.81%, while in primary schools 4.31%.

The results of the dominance of the direct teacher's influence. The predominance of teachers is not expressed so much through criticism, but above all through the dominance of exposure of educational content and providing instructions for work. In the analysis of the subjects we found a correlation between the teacher's questions and pupils' answers. The analysis showed considerable percentage of the pupil's talk in primary and secondary schools. About a third of the lesson time is represented by pupil's talk, which of course should be more frequent, but it is conditioned by many factors (type of subject, type of lesson, the pupil's age, etc.). Indicators of confusion or silence, in our study are very small both in primary and secondary schools. It is often the case in the introductory part of the lesson when teachers record the name of the teaching unit. To determine if there were statistically significant differences between arithmetical means of teachers in primary and secondary school teachers, between the teacher's talk and the pupils' talk, we calculated t-test. The obtained value of t-test for the different lessons in the elementary school (pupil's and teacher's talk) is $t = 3.04$ and is higher than the limit value of 0.05% ($t = 1.96$), and for the different lessons in secondary school value t-test is $t = 2.46$ and is higher than the limit value for 0.05% ($t = 1.96$) for the corresponding degree of freedom ($df = \infty$).

Conclusion

Based on the overall analysis, which is based on the observed lessons in primary and secondary schools, we can generally confirm our hypothesis which was: "*We assume that in teaching process in primary and secondary schools teacher's verbal activity dominates, which does not contribute to the increase of pupil's success*."

- The results of research (64.37% teacher's talk and pupil's talk 29.59%, $t = 2.71$ threshold at the level of 0.01 $t = 2.58$ and 0.05 level 2.58) give us the right to fully confirm the first part of the hypothesis. Although the percentage of the direct teacher's influence is higher (39.31%) compared to the indirect influence (25.06%), most of that percentage refers to the exposure of the content, and the smallest part to the criticism of the pupils.
- From the results it can be concluded that in the subjects where there is a greater presence of pupils 'verbal activity (Bosnian language, Computer science and Religion) rating on a five-minute test of knowledge is greater, while in cases where there is less presence of pupils' verbal activity (Chemistry, Biology,

History, Geography) rating on a five-minute test of knowledge is slightly smaller.

- What we can determine is that during the teacher's verbal activities the indirect teacher's influence dominates and that it is connected to the positive results of success. During the realization of teaching process, teacher's presentation is the most dominant (22.50% of the lesson), but the proportion of the pupil's answer to the teacher's question (17.47%) is increased to some extent compared to the previous studies (15,15% Ozegovic, 2006, p .95) and there is even greater proportion of pupil self - initiative talk (12.13%), compared to the previous studies (2.94% Ozegovic, 2006, p.95).

Based on these research results, we can conclude that in modern teaching practice there is some progress in terms of increasing verbal activities of pupils, but that the verbal activity of teachers is still dominant. Direct teacher's influence (which is manifested through the presentation of programs and giving instructions to pupils) is dominant in relation to the indirect influence. These findings indicate the need for professional training of future teachers and professional development of employed teachers to organize educational, productive, thought, heuristic and creative activities for pupils and a more rational and more effective teachers in modern teaching.

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